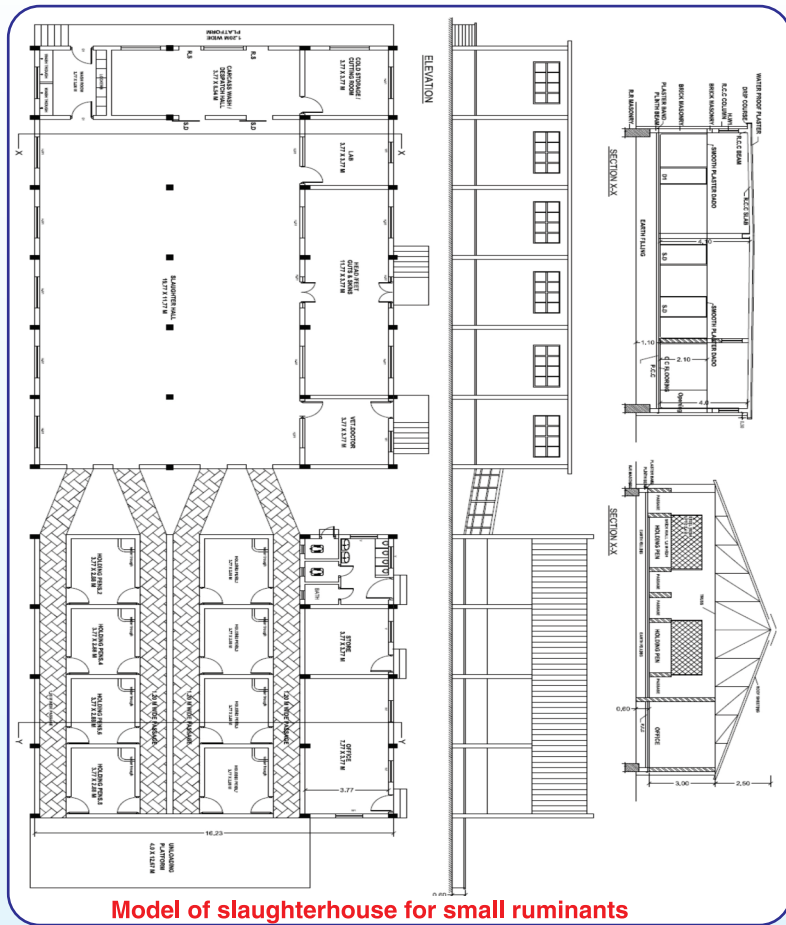
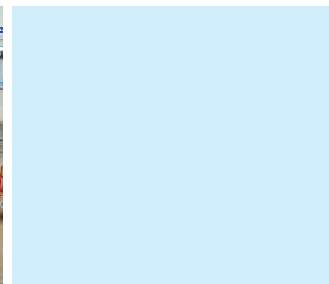
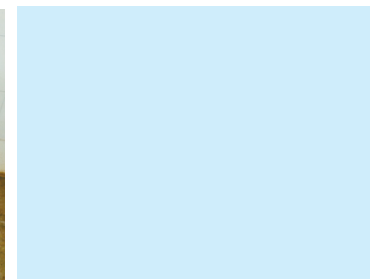
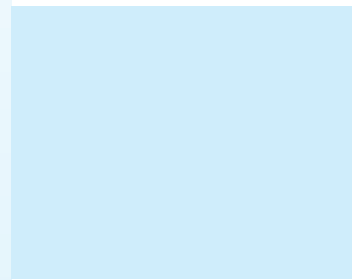
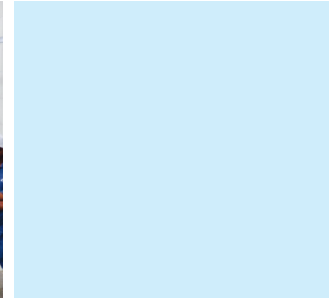


# Clean Meat Production



Model of slaughterhouse for small ruminants



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## Clean meat production: Concept of semi modern slaughterhouse

Clean meat production has a role in ensuring safety which has received greater attention in the recent years. In addition to meat of infected/diseased animal, slaughtering and handling practices as well as poor transportation conditions adds to meat borne illnesses. There is need to visualize an organized meat sector in India and clean meat production is the most important requirement of it. The abattoir need to be well designed, managed on scientific lines and run by trained and skilled manpower with hygienic and sanitary procedures, along with post mortem meat inspection to produce good quality meat. Semi modern slaughterhouse with proper design and construction with suitable drainage system is the requirement for service abattoir concept in our country.

### Criteria for selection of site to establish an abattoir

Abattoir is a place where animals are slaughtered or sacrificed for food. Before finalizing site for establishment of an abattoir, following factors are to be kept in mind:

- ◆ The location of the abattoir should be away from the residential area.
- ◆ There must be enough open space nearby for future expansion. An area of 3-4 acres is required for slaughtering 500 sheep per day.
- ◆ Abattoir has to be located far away from airport and water body.
- ◆ It should have good approach road facilities for bringing meat animals and for dispatch of meat in shortest period.
- ◆ Adequate water supply
- ◆ It should be free from pollution of industrial odors, smoke, dust, ash, etc.
- ◆ Skilled manpower should be available in the nearby area.
- ◆ There should be availability of sufficient number of good meat animals in the region.

### Sections of Slaughterhouse

◆ **Animal reception area:** Should preferably be roofed to protect animals and staff, particularly during identification, handling and sorting. An off-loading dock of about 1.2 m high to permit careful offloading. Healthy animals are sent to lairage while sick and injured animals are to be sent to isolation pen.

◆ **Lairage:** Place where animals are provided rest before slaughter. Rest is to be provided up to 24 hours to overcome the physiological stress involved in transportation of animals. Lairage must have watering, feeding and animal inspection facilities. Minimum 6 hr and if tired due to journey maximum of 24 hr rest can be given.



◆ **Slaughtering and Bleeding area:** It is the area where animals are being slaughtered and complete bleeding is required. Subsequently, flaying, evisceration and inspection. Stations must have platforms at suitable positions and heights for operatives and inspectors to work efficiently without unnecessary stooping and labour.

◆ **Overhead rail dressing:** In modern abattoirs, overhead rail system ensures the basic requirements of hygienic conditions during slaughter and dressing. This reduces the contamination associated with floor slaughtering/dressing.

◆ **Inedible offals room:** Should be located adjacent to flaying point and should have chute like provision

to drop the offals into the room. Workers entry should be from outside. The room may be utilized to handle stomach and intestines.

◆ **Skin store:** Utilized to store salted skin till dispatch. Should have chute like provision to drop the skins into the room. Should have workers entry from outside.

◆ **Edible Offal room:** Should be located adjacent to slaughter hall and offals may be delivered through chute like provision to avoid contamination. Should have workers entry from outside.

◆ **Veterinary office cum Laboratory:** For disease diagnosis and maintain overall hygienic standards.

◆ **Facilities for personnel:** Wash basin (foot or leg operated type), toilet rooms, first aid room etc. should be provided to keep up personal hygiene. Workers of clean and unclean units (abattoir, edible, inedible, dispatch) should have specific work wear (head gear, overcoat, apron, gum boot, face mask, etc.). Personnel working in abattoir are more prone for various types of injuries, hence facilities for wound dressing and other first-aid procedures in food premises is very essential.

◆ **Manure bay:** To store stomach and intestinal content. It should be protected from pest and vermin and may be located nearby effluent treatment plant.

◆ **Effluent treatment plant :** During the process of slaughter and dressing, lot of waste is generated in slaughterhouses. Efficient waste management will protect public health and will also improve the acceptability of the meat production activities among the adjacent residential population. Every service abattoir should have an effluent treatment plant of appropriate capacity for treatment of liquid waste. For small and medium sized abattoirs, land based effluent treatment may serve the purpose.

### Slaughterhouse operations

Hygienic meat production can be achieved, provided animals are hygienically slaughtered and control over post slaughter contamination is practiced. Meat production practices in abattoir operation on the basis of good hygiene practices (GHP), good manufacturing practices (GMP) and Hazard analysis and critical control point (HACCP) are essential to maintain high standard of hygiene to safeguard the consumer health.

◆ **Good Manufacturing Practices (GMP):** These entail the processing conditions and procedures that have been proven to deliver consistent quality and safety based on long experience. Food handlers must protect meat against contamination which is likely to render them unfit for human consumption. Meat should not be contaminated either through direct contact or through work surfaces or equipment. Food safety risks at each stage of the process must be identified and controlled. Standard procedure should be established for transport and handling of carcass/meat, sterilizing knife, utensils and equipment, pest control measure and waste disposal.

◆ **Sanitation programme:** The sanitation process consists essentially of cleaning (removal of organic and inorganic deposits) and disinfection/sanitizing of the equipment and work area (to kill pathogenic and spoilage bacteria). Only the chemicals approved for food processing purpose should be employed. These chemicals are to be used at appropriate concentration for safety and efficiency.



◆ **Personal hygiene:** People, who involved in slaughter and dressing of animals play major role in safety of meat. These personnel are large reservoir of microorganisms and they become source of contamination if they are dirty, do not wear protective clothing and follow good manufacturing practices. Protective clothing, foot wear and headgear must be worn and must be changed regularly. Hands must be washed regularly and kept clean at all times. Workers with infected wounds, skin infections, sores or diarrhea should not be allowed to work in food handling areas.

